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12/7/02 11:00 AM

1

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•	SPT; PLUR=YES; OP=ADJ		
<u>L11</u>	18 and L10	25	<u>L11</u>
<u>L10</u>	natural rubber	22154	<u>L10</u>
<u>L9</u>	16 same L7	54	<u>L9</u>
<u>L8</u>	16 and L7	152	<u>L8</u>
<u>L7</u>	(methyl methacrylate) or (methyl acrylate) or (acrylic acid) or (methacrylic acid) or (acrylonitrile) or (styrene)	176602	<u>L7</u>
<u>L6</u>	14 same 11	154	<u>L6</u>
<u>L5</u>	L4 and l1	514	<u>L5</u>
<u>L4</u>	12 with efficiency	986	<u>L4</u>
<u>L3</u>	11 same L2	6973	<u>L3</u>
<u>L2</u>	graft\$3	55966	<u>L2</u>
L1	rubber	336291	<u>L1</u>

END OF SEARCH HISTORY

L9: Entry 3 of 54

File: USPT

Aug 28, 2001

DOCUMENT-IDENTIFIER: US 6281297 B1

TITLE: Isobutylene rubber particles, graft copolymer particles and resin composition containing the same

Detailed Description Text (18):

The graft efficiency of the obtained graft copolymer (S-1) was determined by measuring the gel fraction of the obtained crosslinked graft copolymer in the same manner as the measurement of the gel fraction of the crosslinked rubber particles in Example 1, and calculating the percentage of the amount of increase of the toluene-insoluble portion based on the graft polymerization with respect to the amount of the vinyl monomer used for the graft polymerization (sum of methyl methacrylate and n-butyl acrylate).

Detailed Description Text (43):

A separable flask equipped with a condenser, a nitrogen feeding tube, a dropping funnel and a stirrer was charged with 80 parts (solid basis) of the obtained latex of the polyorganosiloxane rubber particles and then with 260 parts of water, 0.001 part of ferrous sulfate, 0.004 part of disodium ethylenediaminetetraacetate and 0.1 part of formaldehyde sodium sulfoxylate. The mixture was heated to 70.degree. C. with stirring at 250 r.p.m. in a nitrogen stream. Subsequently, 18 parts of methyl methacrylate, 2 parts of n-butyl acrylate and 0.04 part of cumene hydroperoxide were put in the dropping funnel, and added dropwise to the latex over 2 hours, followed by stirring at 70.degree. C. for 1 hour to give an aqueous latex of organosiloxane-based graft copolymer particles. The conversion of graft polymerization was 99%. Also, the average particle size of the graft copolymer particles was 0.30 .mu.m and the graft efficiency was 95%.

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L9: Entry 4 of 54

File: USPT

Mar 13, 2001

DOCUMENT-IDENTIFIER: US 6201064 B1

TITLE: Crosslinked rubber particles, graft copolymer particles and thermoplastic resin composition

Detailed Description Text (6):

Subsequently, 18.0 parts of methyl methacrylate, 2.0 parts of n-butyl acrylate and 0.04 part of cumene hydroperoxide were put in the dropping funnel, and added dropwise to the rubber latex over 2 hours, followed by stirring at 70.degree. C. for 2 hours. The conversion was 98%. The obtained latex of crosslinked rubber-based graft copolymer particles was coagulated by salting out, and the resulting particles were separated, washed and dried at 40.degree. C. for 15 hours to give a powder of crosslinked rubber-based graft copolymer. The obtained crosslinked rubber-based graft copolymer particles (S-1) had a graft efficiency of 95% and an average particle size of 0.3 .mu.m.

Detailed Description Text (19):

Subsequently, 18.0 parts of methyl methacrylate, 2.0 parts of n-butyl acrylate and 0.04 part of cumene hydroperoxide were put in the dropping funnel, and added dropwise to the rubber latex over 2 hours, followed by stirring at 70.degree. C. for 2 hours. The conversion was 98%. The obtained latex of crosslinked rubber-based graft copolymer particles was coagulated by salting out, and the resulting particles were separated, washed and dried at 40.degree. C. for 15 hours to give a powder of crosslinked rubber-based graft copolymer. The obtained crosslinked rubber-based graft copolymer particles (S-5) had a graft efficiency of 95% and an average particle size of 0.25 .mu.m.

Detailed Description Text (28):

Subsequently, 18.0 parts of methyl methacrylate, 2.0 parts of n-butyl acrylate and 0.04 part of cumene hydroperoxide were put in the dropping funnel, and added dropwise to the crosslinked rubber latex over 2 hours, followed by stirring at 70.degree. C. for 2 hours. The conversion was 98%. The obtained graft copolymer latex was coagulated by salting out, and the resulting particles were separated, washed and dried at 40.degree. C. for 15 hours to give a powder of crosslinked rubber-based graft copolymer. The obtained crosslinked rubber-based graft copolymer particles (S-7) had a graft efficiency of 95% and an average particle size of 0.25 .mu.m.

Detailed Description Text (33):

Subsequently, 18.0 parts of methyl methacrylate, 2.0 parts of n-butyl acrylate and 0.04 part of cumene hydroperoxide were put in the dropping funnel, and added dropwise to the rubber latex over 2 hours, followed by stirring at 70.degree. C. for 2 hours. The conversion was 98%. The obtained latex of graft copolymer particles was coagulated by salting out, and the resulting particles were separated, washed and dried at 40.degree. C. for 15 hours to give a powder of crosslinked rubber-based graft copolymer. The obtained crosslinked rubber-based graft copolymer particles (S-8) had a graft efficiency of 98% and an average particle size of 0.25 .mu.m.

1 of 1

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L9: Entry 9 of 54

File: USPT

Nov 10, 1998

DOCUMENT-IDENTIFIER: US 5834563 A

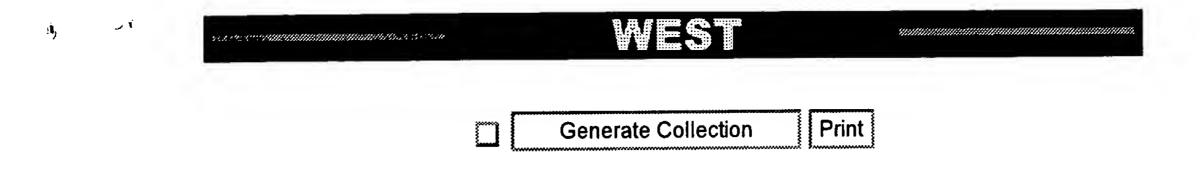
TITLE: Composite rubber particles and graft copolymer particles of composite rubber

Detailed Description Text (4):

Subsequently, 30 parts of methyl methacrylate as the vinyl monomer for graft polymerization and 0.06 part of cumene hydroperoxide as the radical polymerization initiator were put in the dropping funnel, and added dropwise to the composite rubber latex over two hours, followed by stirring at 70.degree. C. for one hour. The conversion was 99%. To the obtained graft copolymer latex of composite rubber was added dropwise 30 parts of an aqueous solution of 10% calcium chloride, followed by solidifying, separating, washing and then drying at 40.degree. C. for 15 hours to give a powder of graft copolymer particles of composite rubber (hereinafter referred to as "S-1"). A graft efficiency and average particle size of the obtained S-1 are shown in Table 1.

Detailed Description Text (11):

Subsequently, 30 parts of methyl methacrylate as the vinyl monomer for graft polymerization and 0.06 part of cumene hydroperoxide as the radical polymerization initiator were put in the dropping funnel, and added dropwise to the composite rubber latex over two hours, followed by stirring at 70.degree. C. for one hour. The conversion was 99%. To the obtained graft copolymer latex of composite rubber was added dropwise 30 parts of an aqueous solution of 10% calcium chloride, followed by solidifying, separating, washing and then drying at 40.degree. C. for 15 hours to give a powder of graft copolymer particles of composite rubber (hereinafter referred to as "S-3"). A graft efficiency and average particle size of the obtained S-3 are shown in Table 1.



L9: Entry 10 of 54

File: USPT

Oct 7, 1997

DOCUMENT-IDENTIFIER: US 5674930 A

TITLE: Thermoplastic resin compositions

Detailed Description Text (84):

The hydroxyl group containing styrene copolymer showed a graft efficiency of 75%. The term "graft efficiency" used herein means the proportion of the styrene grafted to the ethylene-propylene copolymer rubber of the total amount of the raw material styrene, which can be calculated as follows:

1 of 1

Generate Collection	Print

L9: Entry 17 of 54

File: USPT

Feb 23, 1993

DOCUMENT-IDENTIFIER: US 5189108 A

TITLE: Modified polymer rubber and process for preparing the same

Detailed Description Text (3):

Then, 20 parts by weight of styrene monomer and 1.0 part by weight of Sanperox.RTM. To (a registered trade name, mfg. by Sanken Kako Inc.) as a free radical initiator were added thereto. The resulting mixture was brought up to 110.degree. C. over a period of 80 minutes, and then the reaction was continued for 1 hour. After cooling, the styrene-graft copolymer rubber was collected by filtration, washed thoroughly with pure water and then dried under vacuum. The analysis of the graft copolymer obtained in the step (1) revealed that the amount of grafted polystyrene was 16 parts by weight and the amount of non-grafted polystyrene extracted was 3.6 parts by weight, per 20 parts by weight of the added styrene monomer, and the calculated graft efficiency was 82%.

Detailed Description Text (4):

Then, the reaction of the step (2) was carried out by mixing 100 parts by weight of the styrene-graft copolymer rubber obtained above with 0.08 part by weight of 1,1-bis(t-butylperoxy)-3,3,5-trimethylcyclohexane on a mixing roll, and then kneading the mixture with 5 parts by weight of maleic anhydride in a twin-screw extruder set at 250.degree. C. The analysis of the modified copolymer rubber obtained showed that the amount of maleic anhydride in the resulting modified copolymer rubber was 3.2% by weight (3.8 parts by weight based on the original EPDM), the amount of maleic anhydride added to the modified copolymer rubber was 2.1% by weight (2.5 parts by weight based on the original EPDM), and the graft efficiency was 66%. Further, the modified copolymer was dissolved in tetrahydrofuran at 60.degree. C. and filtered through a 120-mesh SUS screen. Resultantly, the amount of gel-like insolubles collected by filtration showed a value of 0.23% in the modified polymer rubber. The value was considered to be satisfactorily low.

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L9: Entry 23 of 54

File: USPT

Feb 18, 1992

DOCUMENT-IDENTIFIER: US 5089557 A

TITLE: Rubber modified blend of nylon and styrene/acrylonitrile maleic anhydride

terpolymer

Detailed Description Text (4):

Vinylaromatic monomers used for the graft copolymer of component A include styrene, and substituted styrenes such as alpha-methylstyrene, chlorostyrene, bromostyrene, p-methyl styrene, and vinyl toluene. A preferred vinylaromatic monomer is styrene. The grafted hard phase may optionally include additional monomers such as methylmethacrylate or N-phenylmaleimide in amounts up to about 10 percent by total graft monomer weight if desired. Advantageously, graft polymerization conditions are selected to provide a graft efficiency of at least 20 weight percent and preferably at least 40 weight percent of the total graft and matrix polymer present in the graft rubber composition. Typically the vinylaromatic/acrylonitrile grafted rubber component contains from 30 to 80 weight percent rubber. The particle size of the vinylaromatic/acrylonitrile grafted rubber is advantageously in the range of 0.05 to 2.0 microns, preferably 0.1 to 0.5 microns. The amount of component A present in the blends of the present invention is preferably from 10 to 50 weight percent.

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L11: Entry 8 of 25

File: USPT

Feb 23, 1993

DOCUMENT-IDENTIFIER: US 5189108 A

TITLE: Modified polymer rubber and process for preparing the same

Brief Summary Text (17):

Previously, the present invention studied for obtaining an ethylene-.alpha.-olefin copolymer rubber modified with an unsaturated dicarboxylic acid anhydride which is excellent in processability and storage stability. They also studied on the process for preparing the same by which a larger amount of unsaturated dicarboxylic acid anhydride added to the rubber, forming a smaller amount of gel and suppressing an extreme increase in Mooney viscosity (ML.sub.1+4 121.degree. C.) as compared with the prior art processes. As a result, they found that a modified polymer rubber obtained by kneading an ethylene-.alpha.-olefin copolymer rubber with a free radical initiator, an aromatic vinyl monomer and an unsaturated dicarboxylic acid anhydride, as compared with those obtained without using an aromatic vinyl monomer, had a larger amount of unsaturated dicarboxylic acid anhydride added thereto and the anhydride moiety was oxidized to the carboxylic acid structure by moisture in a far less degree. The thus obtained modified rubber has no marked increase in Mooney viscosity, so that it shows a good processability. Based on the finding, they applied for a patent (JP-A-64-45413). However, although this process surely gives a modified copolymer having a high content of unsaturated dicarboxylic acid anhydride added thereto and forms little of gel-like substances, it requires the use of a starting rubber having a nonconjugated diene content of not higher than 3% by weight. This is clearly started in the specification of said application. Thus, when the process of said application is applied to EPDM containing more than 3% by weight of nonconjugated diene, a significant formation of gel-like substance results. Accordingly, an improvement in suppressing the gel formation has been desired. Further, according to the process, the amount of the aromatic vinyl monomer in the graft copolymer is limited to less than about 5% by weight. This is because in order to increase the grafted amount of the aromatic vinyl compound by the process, it is necessary to greatly increase the amount of the monomer used in the kneading-grafting reaction, but, when a large amount of these monomers, which are liquid or gas under the reaction conditions, is used, the reaction system assumes the form of liquid or foam, which results in poor kneading efficiency and leads to difficulty in reaction control. Therefore, it had to be admitted that according to the process, it was difficult from the practical point of view to increase the grafted amount of the aromatic vinyl monomer over about 5% by weight.

Brief Summary Text (19):

For example, another application assigned to the present assignee (JP-B-62-10565) discloses a process which comprises grafting styrene, acrylonitrile, etc. to a shredded rubbery polymer in an aqueous suspension in a high graft efficiency. This process also has such disadvantages that when the process is applied to the grafting of unsaturated carboxylic acid derivatives etc., the conversion in the graft reaction is very low and, if a large amount of free-radical initiator is used to promote the graft reaction, gels are formed and makes it impossible to process the modified copolymer in practice.

Brief Summary Text (38):

Specific examples of the rubbery polymers (A) usable in the present invention are rubbers such as ethylene-.alpha.-olefin copolymer rubber, ethylene-.alpha.-olefin-non-conjugated diene copolymer rubber, styrene-butadiene copolymer rubber, polybutadiene rubber, polyisoprene rubber, natural rubber, acrylonitrile-butadiene copolymer rubber, ethylene-vinyl acetate copolymer rubber, acrylic rubber, and ethylene-acrylic ester copolymer rubber.

Brief Summary Text (39):

Of these, preferable are ethylene-.alpha.-olefin copolymer rubber and

ethylene-.alpha.-olefin-nonconjugated diene copolymer <u>rubber</u> because they form less amount of gel in the step (2) described later and give a higher <u>graft efficiency</u> (namely, the proportion of the monomers actually added to the <u>rubber</u> in the fed monomers) in the step (1) and the step (2).

Brief Summary Text (45):

The aromatic vinyl monomer (B) used in the present invention is preferably styrene, but may also be o-methylstyrene, p-methylstyrene, m-methylstyrene, .alpha.-methylstyrene or the like. They may be used also as a mixture thereof.

Brief Summary Text (46):

In the step (1) of the present invention, a non-aromatic vinyl monomer (C) may be used together with the aromatic vinyl monomer (B). Specific examples of such non-aromatic vinyl monomer (C) are unsaturated nitriles such as acrylonitrile and methacrylonitrile; unsaturated carboxylic acids such as acrylic acid and methacrylic acid; alkyl esters of acrylic or methacrylic acid such as methyl acrylate and methyl methacrylate; vinyl chloride, etc., used each alone or in admixture of two or more thereof. Particularly, acrylonitrile and methyl acrylate are preferably used from the viewpoint of reactivity in copolymerization with the aromatic vinyl monomer (B).

Brief Summary Text (48):

The polymerizable monomer (D) used in the step (2) of the process of the present invention described later is selected from the group consisting of unsaturated dicarboxylic acid anhydrides, unsaturated monocarboxylic acid esters, unsaturated carboxylic acid amides, unsaturated ethers, and the derivatives thereof. Specific examples of the monomers included in the group are maleic anhydride, fumaric anhydride, citraconic anhydride, chloromaleic anhydride, maleimide, N-aromatic maleimide, N-aliphatic maleimide, acrylamide, methacrylamide, N-methylolacrylamide, itaconic anhydride, methyl acrylate, ethyl acrylate, butyl acrylate, methyl methacrylate, ethyl methacrylate, butyl methacrylate, maleic hydrazide, reaction products of maleic anhydride with diamines, himic anhydride (bicyclo [2,2,1]hepta-5-en-2,3-dicarboxylic acid anhydride), dimethylaminopropylacrylamide, 7-amino-3,7-dimethyloctyl acrylate, methyl 2-cyanoacrylate, tetrahydrofulfuryl acrylate, glycidyl acrylate, glycidyl methacrylate, allyl glycidyl ether, himic anhydride chloride, etc. Further, citric acid, which is a saturated carboxylic acid and is generally not included in unsaturated carboxylic acids, is, in the reaction of the step (2) of the present invention, converted into itaconic anhydride as the result of dehydration and decarboxylation caused by heating during the reaction, and hence can be used as a sort of unsaturated carboxylic acid derivatives in the present invention.

Brief Summary Text (53):

The step (1) is a step of graft - polymerizing to a shredded rubbery polymer (A) in an aqueous suspension at a temperature of 30.degree.-130.degree. C. at least one grafting monomer (E) selected from the group consisting of aromatic vinyl monomers (B) and vinyl monomers (F) consisting of at least one aromatic vinyl monomer (B) and at least one non-aromatic vinyl monomer (C). The rubbery polymer (A of the starting material is shredded with a cutter, grinding machine or such and then fed to a reactor. The granule size of the shredded rubbery polymer (A) is not particularly limited, but is preferably not more than about 3 mm from the viewpoint of enhancing the contact efficiency with the monomers to be added and preferably not less than about 1 mm from the viewpoint of easiness of recovery operations after the reaction. The proportion of the grafting monomer (E) to the rubery polymer (A) used varies according to the kinds of the monomers used and the properties required for the objective modified polymer rubber In general, the total amount of the grafting monomer (B) is 1-900 parts by weight relative to 100 parts by weight of the rubbery polymer (A). Particularly when ethylene-.alpha.-olefin copolymer rubber or ethylene-.alpha.-olefin-non-conjugated diene copolymer rubber is used with the grafting monomer (E), the total amount of the grafting monomer (E) is preferably in the range of 5-100 parts by weight per 100 parts by weight of the rubbery polymer. When the amount of the grafting monomer (E) used is less than 5 parts by weight, the amount of the grafting monomer (E) added to the rubbery polymer (A) decreases, which result in the reduction of the modification effect, that is, the reduction of the compatibilizing capability of the modified polymer in use as a compatibilizer for various resins, aimed at by the present invention. When the amount exceeds 100 parts by weight, there may be caused such undesirable results that in the reaction of the step (1), the rubbery polymer granules are swollen by the monomers, increase their tackiness to stick to one another and making their handling difficult, or the homopolymer of the aromatic vinyl monomer (B) is produced in a remarkably large yield lowers the graft efficiency and results in the deterioration of the capability as a compatibilizer.

2 of 6

Brief Summary Text (59):

An advantage of the process of the present invention is that in the reaction of step (1), a graft copolymer is obtained with a high graft efficiency of the grafting monomer (E) and, by using the graft copolymer in the reaction of the step (2), a modified copolymer rubber having a high content of the polymerizable monomer (D), e.g. unsaturated dicarboxylic acid anhydride, is obtained without gel formation. The graft copolymer obtained in the step (1) is preferably separated and recovered from the aqueous medium by such means as decantation of filtration, and then the water adhereing to the graft copolymer which is in the form of granules or crumbs is removed by such means as centrifugal dehydration or hot-air drying. In this case, the amount of water remaining in the graft copolymer is preferably reduced to 10 parts by weight or less, more preferably 5 parts by weight or less, from the viewpoint of preventing the inhibition of the reaction in the step (2) and preventing foaming during kneading in the step (2).

Brief Summary Text (63):

Though the kinds of the polymerizable monomer (D) used in the step (2) have already been described above, a radical-polymerizable monomer other than the polymerizable monomer (D) may also be used together with the polymerizable monomer (D) in said step. Specific examples of such radical-polymerizable monomers are unsaturated nitriles (e.g. acrylonitrile and methacrylonitrile), and unsaturated carboxylic acids (e.g. acrylic acid, methacrylic acid, maleic acid, fumaric acid, itaconic acid and crotonic acid.). They can be used each alone or as a mixture of two or more thereof. In some cases, depending on the kinds of properties and their levels required for the modified copolymer rubber, it is also possible to use the aromatic vinyl monomer (B) in the step (2) with the polymerizable monomer (D).

Brief Summary Text (72):

In feeding the respective components described above to the kneader, it is possible to feed them each separately. It is also possible to uniformly mix a part or whole of the components and feed the mixture. An adoptable method comprises, for example, incorporating the rubber component with the free radical initiator to obtain a mixture, feeding the polymerizable monomer (D) with the mixture into a kneader simultaneously, and kneading the components fed. Another usable method comprises feeding the free radical initiator and/or the polymerizable monomer (D) from a certain opening in the midway of the extruder in order to effect the modification reaction. It is also possible to add, into the reactor of the step (1) or into the extruder of the step (2) through the inlet, as occasion demands, plastics such as polyethylene, nylon, polyester, ABS and polyphenylene ether, and elastomers such as styrenebutadiene block copolymer, styrene-isoprene block copolymer, and the hydrogenation products thereof, whereby comodification of two or more kinds of polymers can be effected.

Brief Summary Text (83):

The amount of styrene added to the graft copolymer obtained in the step (1) was determined from the intensity of the peak corresponding to a substituted benzene ring which appeared in the infrared absorption spectrum. The amount of maleic anhydride added to the modified copolymer rubber obtained in the step (2) was determined by dissolving the extrudate sample in a small amount of toluene, precipitating it with anhydrous acetone, dissolving the sample thus purified again in toluene, and titrating the resulting solution with a KOH ethanol solution at an elevated temperature (85.degree. C.) using phenolphthalen as an indicator.

Brief Summary Text (84):

The amount of styrene added, when styrene was used as the polymerizable monomer (C) of the step (2), was determined from the intensity of the peak corresponding to a substituted benzene ring which appeared in the infrared absorption spectrum of the sample purified as described above.

Detailed Description Text (3):

Then, 20 parts by weight of styrene monomer and 1.0 part by weight of Sanperox.RTM. TO (a registered trade name, mfg. by Sanken Kako Inc.) as a free radical initiator were added thereto. The resulting mixture was brought up to 110.degree. C. over a period of 80 minutes, and then the reaction was continued for 1 hour. After cooling, the styrene-graft copolymer rubber was collected by filtration, washed thoroughly with pure water and then dried under vacuum. The analysis of the graft copolymer obtained in the step (1) revealed that the amount of grafted polystyrene was 16 parts by weight and the amount of non-grafted polystyrene extracted was 3.6 parts by weight, per 20 parts by weight of the added styrene monomer, and the calculated graft efficiency was 82%.

3 of 6

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Detailed Description Text (4):
Then, the reaction of the step (2) was carried out by mixing 100 parts by weight of the styrene-graft copolymer rubber obtained above with 0.08 part by weight of 1,1-bis(t-butylperoxy)-3,3,5-trimethylcyclohexane on a mixing roll, and then kneading the mixture with 5 parts by weight of maleic anhydride in a twin-screw extruder set at 250.degree. C. The analysis of the modified copolymer rubber obtained showed that the amount of maleic anhydride in the resulting modified copolymer rubber was 3.2% by weight (3.8 parts by weight based on the original EPDM), the amount of maleic anhydride added to the modified copolymer rubber was 2.1% by weight (2.5 parts by weight based on the original EPDM), and the graft efficiency was 66%. Further, the modified copolymer was dissolved in tetrahydrofuran at 60.degree. C. and filtered through a 120-mesh SUS screen. Resultantly, the amount of gel-like insolubles collected by filtration showed a value of 0.23% in the modified polymer rubber. The value was considered to be satisfactorily low.

Detailed Description Paragraph Table (1):

TABLE 1

Comp. Comp. Comp. Comp. Comp. Exam- Exam-

Ethylene content (wt. %) 56 56 65 65 56 56 56 56 53 56 bery .alpha.-Olefin species Pro-Pro- Bu- Bu- Pro- Pro- Pro- Pro- Pro- Pro- poly- pylene pylene tene-1 tene-1 pylene pylene pylene pylene pylene mer Nonconjugated diene*.sup.1 species ENB DCPD ENB ENB ENB ENB ENB ENB ENB ENB (A) Nonconjugated diene content 5.2 10.4 8.2 8.2 5.2 5.2 5.2 5.2 25 5.2 (wt. %) Number average mol. wt. 60,000 50,000 40,000 40,000 60,000 60,000 60,000 60,000 50,000 60,000 Step Amount Rubbery polymer 100 100 100 100 100 100 --*.sup.6 100 100 (1) used (A) (parts by wt.) Styrene 20 30 40 36 120 20 5 20 20 (parts by wt.) Acrylonitrile 0 3 0 4 0 0 0 0 MAH (parts by wt.) 5*.sup.7 Reaction state Reaction proceeded in good Granules Good Good --*.sup.5 Good Good slurry state. Graft copolymer stuck with formed was easily collected one another. by filtration Difficulty recoverable Step Amount of styrene added to 16.0 23.2 31.5 30.2 --*.sup.5 16.1 4.3 --*.sup.6 17.8 15.9 (2) graft copolymer formed (parts by wt.)*.sup.2 Amount of acrylonitrile added 0 2.4 0 3.6 0 0 0 0 to graft copolymer formed (parts by wt.) *.sup.2 Graft copolymer 100 100 100 100 --*.sup.5 100 100 100 100 --*.sup.7 (parts by wt.) *.sup.3 MAH*.sup.4 (parts by wt.) 5 5 5 5 2 5 Styrene 5 2.2*.sup.6 Kneading temperature (.degree.C.) 250 230 260 220 160 250 250 250 Mooney viscosity of modified 90 82 70 76 --*.sup.5 88 68 63 Unmeas- 88 polymer rubber formed able (M.sub.1+4 121.degree. C.) Amount of MAH added to 2.1 1.8 1.6 1.4 0.03 1.8 MAH Unmeas- Not modified polymer rubber 1.3 urable detect- (parts by wt.) Styrene ed 0.8 Amount of gel in modified 0.23 0.31 0.13 0.18 0.21 0.18 28 >50 0.16 polymer rubber (parts by wt.) Notes:

*.sup.1 ENB: 5Ethylidene-2-norbornene, DCPD: Dicyclopentadiene *.sup.2 Amount per 100 parts by wt. of rubbery polymer (A) *.sup. 3 Polymer recovered in the reaction of step (1) *.sup.4 MAH: Maleic anhydride *.sup.5 Uniform product could not be obtained. The reaction of step (2) could not be performed. *.sup.6 The reaction of step (2) alone was performed with addition of 5 parts by wt. of styrene and 5 parts by wt. of MAH, without performing the reaction of step (1). *.sup.7 MAH was added together with styrene in the reaction of step (1). The reaction of step (2) was omitted.

Detailed Description Paragraph Table (2):

TABLE 2

Example 6 Example 7 Example 8

Monomer (D)

used in step (2) Allyl glycidyl Acrylamide N-Methylol- (part by wt.) ether (2)

acrylamide (2) (2) Results of Amount of styrene added 15.3 16.4 15.7 analysis of (part by wt.)*.sup.1 modified Amount of monomer (D) added 0.8 1.1 1.3 polymer (part by wt.)*.sup.1 rubber Mooney viscosity (ML.sub.1+4 121.degree. C.) 86 95 102 Amount of gel (wt. %) 0.26 0.29 0.38

Note:

*.sup.1 Part by wt. per 100 parts by wt. of rubbery polymer (A) as starting material

CLAIMS:

- 1. A process for preparing a modified polymer rubber comprising the steps of:
- (1) graft-polymerizing to a shredded rubbery polymer (A) in an aqueous suspension at a temperature of 30.degree.-130.degree. C. at least one grafting monomer (E) selected from the group consisting of

4.

aromatic vinyl monomers (B) and

vinyl monomers consisting of:

at least one aromatic vinyl monomer (B) and at least one non-aromatic vinyl monomer (C) selected from the group consisting of:

acrylonitrile,

methacrylonitirle,

acrylic acid,

acrylic acid alkyl esters,

methacrylic acid,

methacrylic acid alkyl esters, and

vinyl chloride, the weight ratio of the rubbery polymer (A) to the grafting monomer (E) falling with in the range of from 100:5 to 100:100, to obtain a graft polymer, and

(2) kneading the graft copolymer with at least one polymerizable monomer (D) selected for the group consisting of:

unsaturated dicarboxylic acid anhydrides and the derivatives thereof,

unsaturated monocarboxylic acid esters and the derivatives thereof,

unsaturated carboxylic acid amines and the derivatives thereof, and

unsaturated carboxylic acid ethers and the derivatives thereof,

in the presence of a free radical initiator at a temperature of 180.degree.-280.degree.

- 4. The process of claim 3, wherein the step (1) includes the step of selecting at least one member selected from the group consisting of styrene, o-methylstyrene, p-methylstyrene and .alpha.-methylstyrene as the aromatic vinyl monomer (B).
- 5. The process of claim 1, wherein the step (1) includes the step of selecting styrene as the aromatic vinyl monomer (B).
- 7. The process of claim 6, wherein the step (1) includes the step of selecting at least one member selected from the group consisting of styrene, o-methylstyrene, m-methylstyrene, p-methylstyrene and .alpha.-methylstyrene as the aromatic vinyl monomer (B).
- 8. The process of claim 7, wherein the step (1) includes the step of selecting styrene as the aromatic vinyl monomer (B).
- 9. The process of claim 1, wherein the step (1) includes the step of selecting acrylonitrile as the nonaromatic vinyl monomer (C).
- 13. A process for preparing a modified polymer rubber comprising the steps of:
- (1) graft-polymerizing to a shredded rubbery polymer (A) in an aqueous suspension at a temperature of 30 -130.degree. C. at least one grafting monomer (E) selected from the group consisting of

aromatic vinyl monomers (B) and

vinyl monomers consisting of:

at least one aromatic vinyl monomer (B) and at least one non-aromatic vinyl monomer (C) selected from the group consisting of:

\$,

acrylonitrile,

methacrylonitrile,

acrylic acid,

acrylic acid alkyl esters,

methacrylic acid,

methacrylic acid alkyl esters, and

vinyl chloride, the weight ratio of the rubbery polymer (A) to the grafting monomer (E) falling within the range of from 100:5 to 100:100, to obtain a graft polymer, and

(2) kneading the graft copolymer with at least one polymerizable monomer (D) selected from the group consisting of:

maleic anhydride,

allyl glycidyl ether,

acrylamide, and

N-methylol-arylamide, in the presence of a free radical initiator at a temperature of 180.degree.-280.degree. C.

WEST

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Search Results - Record(s) 1 through 25 of 25 returned.

1. Document ID: US 6448343 B1

L11: Entry 1 of 25

File: USPT

Sep 10, 2002

US-PAT-NO: 6448343

DOCUMENT-IDENTIFIER: US 6448343 B1

TITLE: Silane vulcanized thermoplastic elastomers

DATE-ISSUED: September 10, 2002

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY
Schombourg; Jacques F. Commugny CH

Kraxner; Peter Geneva CH
Furrer; Willy Gingins CH
Adberrazig; Abdellatif Meyrin CH

US-CL-CURRENT: 525/288; 525/73, 525/74, 525/78

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims KMC Draw, Description

2. Document ID: US 6071987 A

L11: Entry 2 of 25

File: USPT

Jun 6, 2000

US-PAT-NO: 6071987

DOCUMENT-IDENTIFIER: US 6071987 A

TITLE: Silicone emulsion composition and process for producing silicone powder

therefrom

DATE-ISSUED: June 6, 2000

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Matsumoto; Makoto Tokyo JP
Takanashi; Masanori Tokyo JP

US-CL-CURRENT: 523/209; 524/837, 524/861, 524/862, 528/15

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims KMC Draw Desc Image 3. Document ID: US 5948858 A

L11: Entry 3 of 25

File: USPT

Sep 7, 1999

US-PAT-NO: 5948858

DOCUMENT-IDENTIFIER: US 5948858 A

TITLE: Rubber-modified polymer composition

DATE-ISSUED: September 7, 1999

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Dorrestijn; Antoon Born NL
Koning; Cornelis E. Schinnen NL
Bruls; Wilhelmus G. M. Meerssen NL

US-CL-CURRENT: 525/66; 524/112



4. Document ID: US 5756576 A

L11: Entry 4 of 25

File: USPT

May 26, 1998

Jul 1, 1997

US-PAT-NO: 5756576

DOCUMENT-IDENTIFIER: US 5756576 A

TITLE: Rubber-modified polymer composition

DATE-ISSUED: May 26, 1998

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Bruls; Wilhelmus G. M. Meerssen NL
Buntinx; Robbie A. M. Heerlen NL
Reid; Valerie M. C. Maastricht NL

US-CL-CURRENT: 525/66; 525/64, 525/67, 525/68, 525/70

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims KMC Draw, Description Image

5. Document ID: US 5643997 A

L11: Entry 5 of 25 File: USPT

US-PAT-NO: 5643997

DOCUMENT-IDENTIFIER: US 5643997 A

TITLE: Polyethylenic resin composition

DATE-ISSUED: July 1, 1997

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

Matsuoka; Masami

Aoyagi; Hikaru

Kawasaki Kawasaki **Ј**Р **Ј**Р

US-CL-CURRENT: 525/71; 525/74, 525/78

Full Title Citation Front Review Classification Date Reference Sequences Attachments

Drawn Description

KWIC

6. Document ID: US 5334658 A

L11: Entry 6 of 25

File: USPT

Aug 2, 1994

US-PAT-NO: 5334658

DOCUMENT-IDENTIFIER: US 5334658 A

TITLE: Thermoplatic molding materials

DATE-ISSUED: August 2, 1994

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

Blumenstein; Uwe

Ludwigshafen

DE

Klaerner; Peter

Battenberg Ilvesheim

DE DE

Schuch; Horst Walter; Hans-Michael

Freinsheim

DE

US-CL-CURRENT: 525/71

Full Title Citation Front Review Classification Date Reference Sequences Attachments

Draws Descripting

KWIC

7. Document ID: US 5264494 A

L11: Entry 7 of 25

File: USPT

Nov 23, 1993

US-PAT-NO: 5264494

DOCUMENT-IDENTIFIER: US 5264494 A

TITLE: Halogenated butyl rubber graft copolymers

DATE-ISSUED: November 23, 1993

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Ho; Chai H. London CA
Hopkins; William Sarnia CA

US-CL-CURRENT: $\underline{525}/\underline{237}$; $\underline{525}/\underline{232}$, $\underline{525}/\underline{235}$, $\underline{525}/\underline{242}$, $\underline{525}/\underline{244}$, $\underline{525}/\underline{245}$, $\underline{525}/\underline{248}$, $\underline{525}/\underline{250}$

Full Title Citation Front Review Classification Date Reference Sequences Attachments

Draws Description

KWIC

8. Document ID: US 5189108 A

L11: Entry 8 of 25

File: USPT

Feb 23, 1993

US-PAT-NO: 5189108

DOCUMENT-IDENTIFIER: US 5189108 A

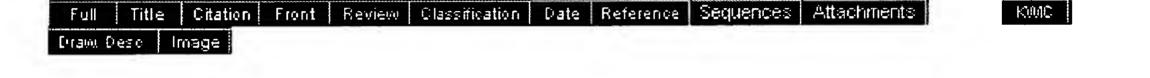
TITLE: Modified polymer rubber and process for preparing the same

DATE-ISSUED: February 23, 1993

INVENTOR-INFORMATION:

STATE ZIP CODE COUNTRY NAME CITY Ichihara JP Imai; Akio Tsuji; Mitsuji Ichihara JΡ Sanada; Takashi Ichihara JP JP Yamamoto; Keisaku Ichihara

US-CL-CURRENT: 525/285; 525/260, 525/263, 525/289, 525/296, 525/301, 525/308, 525/310, 525/312, 525/316, 525/317



9. Document ID: US 5093417 A

L11: Entry 9 of 25

File: USPT

Mar 3, 1992

US-PAT-NO: 5093417

DOCUMENT-IDENTIFIER: US 5093417 A

TITLE: Impact-resistant resin

DATE-ISSUED: March 3, 1992

INVENTOR-INFORMATION:

ZIP CODE COUNTRY CITY STATE NAME JP Sasaki; Isao Otake Yamamoto; Naoki Otake JP Yanagase; Akira Otake JP JP Ito; Masakazu Otake

US-CL-CURRENT: 525/63; 525/101, 525/68

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	raww Desc	Image			

10. Document ID: US 4929673 A

L11: Entry 10 of 25

File: USPT

May 29, 1990

US-PAT-NO: 4929673

DOCUMENT-IDENTIFIER: US 4929673 A

TITLE: Polycarbonate/styrenic blends modified with a grafted olefin copolymer

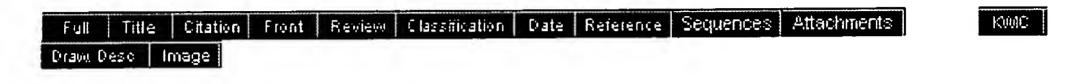
DATE-ISSUED: May 29, 1990

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Laughner; Michael K. Lake Jackson TX
Lancaster; Gerald M. Freeport TX
Sun; Yun C. Midland MI

US-CL-CURRENT: 525/63; 525/146, 525/148, 525/92E



11. Document ID: US 4404328 A

L11: Entry 11 of 25 File: USPT Sep 13, 1983

US-PAT-NO: 4404328

DOCUMENT-IDENTIFIER: US 4404328 A

TITLE: Organometallic polymer compositions useful as constituents of anti-fouling

paints for marine structures and their methods of manufacture

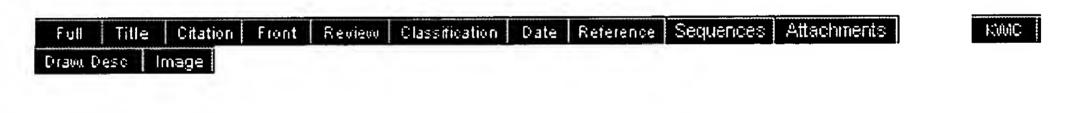
DATE-ISSUED: September 13, 1983

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Dawans; Francois Bougival FR
Devaud; Marguerite Mont St. Aignan FR
Nicolas; Denise Maurepas FR

US-CL-CURRENT: 525/274



12. Document ID: US 4389460 A

L11: Entry 12 of 25 File: USPT Jun 21, 1983

US-PAT-NO: 4389460

DOCUMENT-IDENTIFIER: US 4389460 A

TITLE: Method of protecting submerged articles against fouling

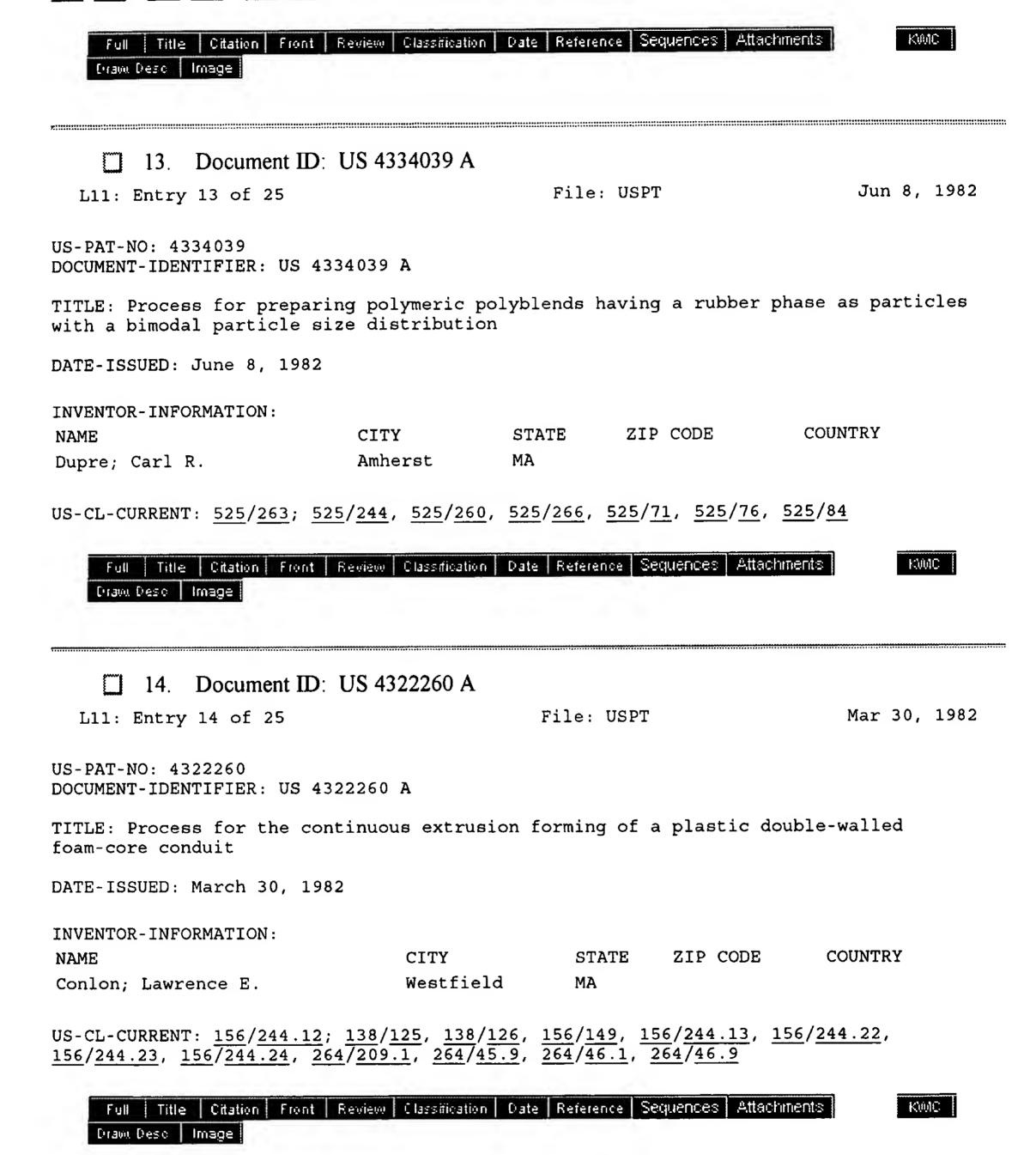
DATE-ISSUED: June 21, 1983

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Dawans; Francois Bougival FR
Devaud; Marguerite Mont St Aignan FR
Nicolas; Denise Maurepas FR

US-CL-CURRENT: <u>428/458</u>; <u>106/15.05</u>, <u>106/16</u>, <u>106/18.35</u>, <u>428/461</u>, <u>428/462</u>, <u>428/463</u>, <u>428/541</u>, <u>428/907</u>, <u>525/310</u>



☐ 15. Document ID: US 4315083 A

L11: Entry 15 of 25 File: USPT Feb 9, 1982

US-PAT-NO: 4315083

DOCUMENT-IDENTIFIER: US 4315083 A

TITLE: Process for the continuous mass polymerization of polyblends

DATE-ISSUED: February 9, 1982

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

Burk; Raymond D.

Wilbraham

MA

US-CL-CURRENT: 525/53; 525/237, 525/316, 525/99

Full Title Citation Front Review Classification Date Reference Sequences Attachments KMC

Draw Description

16. Document ID: US 4262097 A

L11: Entry 16 of 25

File: USPT

Apr 14, 1981

US-PAT-NO: 4262097

DOCUMENT-IDENTIFIER: US 4262097 A

TITLE: Organometallic polymer compositions useful as constituents of anti-fouling paints for marine structures and their methods of manufacture

DATE-ISSUED: April 14, 1981

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Dawans; Francois Bougival FR
Devaud; Marguerite Mont St Aignan FR
Nicolas; Denise Maurepas FR

US-CL-CURRENT: 525/274; 106/15.05, 106/16, 106/18.35, 525/285, 525/310, 525/370, 525/371

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWIC |
Draw, Desc | Image |

17. Document ID: US 4221681 A

L11: Entry 17 of 25

File: USPT

Sep 9, 1980

US-PAT-NO: 4221681

DOCUMENT-IDENTIFIER: US 4221681 A

TITLE: Method of forming graft copolymers by attaching pre-polymerized side chains to a natural or unsaturated synthetic rubber backbone, and the resulting graft copolymers

DATE-ISSUED: September 9, 1980

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY
Campbell; David S. Welwyn GB2
Loeber; David E. Hertford GB2
Tinker; Andrew J. Hertford GB2

US-CL-CURRENT: 525/194; 525/232, 525/376

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWIC

18. Document ID: US 4101702 A

L11: Entry 18 of 25

File: USPT

Jul 18, 1978

US-PAT-NO: 4101702

DOCUMENT-IDENTIFIER: US 4101702 A

TITLE: Composite sheet member having a plurality of coextruded laminar layers

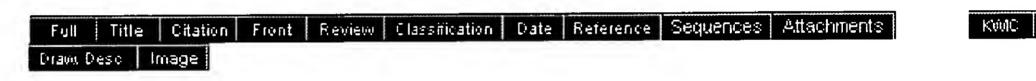
DATE-ISSUED: July 18, 1978

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Churchill; Geoffrey B. Wilbraham MA
White; J. Craig Feeding Hills MA

US-CL-CURRENT: 428/213; 156/244.11, 264/173.12, 264/173.14, 264/173.16, 264/174.1, 428/493, 428/519, 428/520, 428/522, 525/86



19. Document ID: US 4097549 A

Lll: Entry 19 of 25 File: USPT Jun 27, 1978

US-PAT-NO: 4097549

DOCUMENT-IDENTIFIER: US 4097549 A

TITLE: Polymer polyblend composition

DATE-ISSUED: June 27, 1978

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Kruse; Robert L. Springfield MA

US-CL-CURRENT: 525/86; 525/72, 525/75, 525/76, 526/65, 526/68

Full Title Citation Front Review Classification Date Reference Sequences Attachments KMC Praw. Description Image

20. Document ID: US 3978161 A

L11: Entry 20 of 25 File: USPT Aug 31, 1976

.US-PAT-NO: 3978161

DOCUMENT-IDENTIFIER: US 3978161 A

TITLE: Metalation of polymers

DATE-ISSUED: August 31, 1976

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Nielsen; Stuart D. Stow OH
Hargis; Ivan G. Tallmadge OH
Livigni; Russell A. Akron OH

US-CL-CURRENT: 525/360; 525/332.9, 525/333.2, 525/357, 525/366, 525/375, 526/339, 526/340

Full Title Citation Front Review Classification Date Reference Sequences Attachments

Drawl Description

21. Document ID: US 3898301 A

L11: Entry 21 of 25 File: USPT

Aug 5, 1975

KWIC

US-PAT-NO: 3898301

DOCUMENT-IDENTIFIER: US 3898301 A

TITLE: Blends of thermoplastic polymers with graft copolymers of maleic acid

derivatives

DATE-ISSUED: August 5, 1975

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY
Konishi; Kunio Osaka JA
Tsubakimoto; Tsuneo Osaka JA
Nikki; Masao Osaka JA

US-CL-CURRENT: $\underline{525}/\underline{77}$; $\underline{524}/\underline{151}$, $\underline{524}/\underline{303}$, $\underline{525}/\underline{286}$, $\underline{525}/\underline{288}$, $\underline{525}/\underline{292}$, $\underline{525}/\underline{293}$, $\underline{525}/\underline{296}$, $\underline{525}/\underline{297}$, $\underline{525}/\underline{301}$, $\underline{525}/\underline{303}$, $\underline{525}/\underline{304}$, $\underline{525}/\underline{305}$, $\underline{525}/\underline{306}$, $\underline{525}/\underline{73}$, $\underline{525}/\underline{74}$, $\underline{525}/\underline{75}$, $\underline{525}/\underline{76}$, $\underline{525}/\underline{78}$, $\underline{525}/\underline{79}$, $\underline{525}/\underline{81}$, $\underline{525}/\underline{82}$, $\underline{526}/\underline{225}$, $\underline{526}/\underline{312}$, $\underline{526}/\underline{318}$, $\underline{526}/\underline{325}$, $\underline{526}/\underline{329.2}$, $\underline{526}/\underline{329.3}$, $\underline{526}/\underline{342}$

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWIC

22. Document ID: US 3887653 A

L11: Entry 22 of 25

File: USPT

Jun 3, 1975

US-PAT-NO: 3887653

DOCUMENT-IDENTIFIER: US 3887653 A

TITLE: Process for production of graft copolymers, the substrates of which contain allyl derivatives of maleic acid and maleic acid anhydride

DATE-ISSUED: June 3, 1975

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Konishi; KunioTakatsukiJATsubakimoto; TsuneoToyonakaJANikki; MasaoIbaragiJA

US-CL-CURRENT: 525/301; 524/151, 524/303, 525/293, 525/303, 526/225, 526/271, 526/312, 526/318, 526/325, 526/329.5, 526/342

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWIC

23. Document ID: US 3802950 A

L11: Entry 23 of 25

File: USPT

Apr 9, 1974

US-PAT-NO: 3802950

DOCUMENT-IDENTIFIER: US 3802950 A

TITLE: CELLULAR POLYURETHANE-BITUMEN-PLASTIC COMPOSITE

DATE-ISSUED: April 9, 1974

INVENTOR-INFORMATION:

NAME

CITY

STATE

COUNTRY

ZIP CODE

Stevens; James K.

Brimfield

MA

US-CL-CURRENT: 428/215; 428/314.4, 428/318.4, 428/319.9, 428/489

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWIC

24. Document ID: US 3627613 A

L11: Entry 24 of 25

File: USPT

Dec 14, 1971

US-PAT-NO: 3627613

DOCUMENT-IDENTIFIER: US 3627613 A

TITLE: CONTINUOUS PROCESS FOR PREPARING COMPOSITES IN SHEET FORM

DATE-ISSUED: December 14, 1971

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE COUNTRY

Stolki; Thomas J.

Wilbraham

MA

US-CL-CURRENT: 156/309.6; 156/192, 156/244.25, 156/244.27, 156/273.3, 156/307.7, 156/309.9, 156/322, 156/324, 428/332, 428/462, 428/463, 442/37

Full Title Citation Front Review Classification Date Reference Sequences Attachments

Drawl Description

KWIC

25. Document ID: US 3625915 A

L11: Entry 25 of 25

File: USPT

Dec 7, 1971

US-PAT-NO: 3625915

DOCUMENT-IDENTIFIER: US 3625915 A

TITLE: ANTISTATIC STYRENE/ACRYLONITRILE-TYPE INTERPOLYMER COMPOSITIONS

DATE-ISSUED: December 7, 1971

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Gubler; Michel Meurchin
Guillon; Joseph Henin-Lietard FR

US-CL-CURRENT: <u>524/244</u>; <u>260/DIG.15</u>, <u>260/DIG.17</u>, <u>260/DIG.19</u>, <u>524/245</u>, <u>524/247</u>, <u>524/249</u>, <u>524/565</u>, <u>525/71</u>, <u>525/75</u>, <u>525/76</u>, <u>525/86</u>, <u>525/87</u>



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(L8 AND L10).USPT.	25

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11 of 11

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Search Results - Record(s) 1 through 54 of 54 returned.

1. Document ID: US 6403683 B1

L9: Entry 1 of 54

File: USPT

Jun 11, 2002

US-PAT-NO: 6403683

DOCUMENT-IDENTIFIER: US 6403683 B1

TITLE: Polycarbonate resin composition and molded article

DATE-ISSUED: June 11, 2002

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

COUNTRY

Kobayashi; Hiroaki

Chiyoda-ku

JР

US-CL-CURRENT: <u>524/115</u>; <u>528/196</u>, <u>528/198</u>



2. Document ID: US 6362282 B1

L9: Entry 2 of 54

File: USPT

Mar 26, 2002

US-PAT-NO: 6362282

DOCUMENT-IDENTIFIER: US 6362282 B1

TITLE: Polymers with high vinyl end segments

DATE-ISSUED: March 26, 2002

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

COUNTRY

DeDecker; Mark N.

North Canton

OH

US-CL-CURRENT: 525/271; 525/250, 525/319, 526/136, 526/87

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims KWC
Draw, Desc Image

3. Document ID: US 6281297 B1

L9: Entry 3 of 54

File: USPT

Aug 28, 2001

US-PAT-NO: 6281297

DOCUMENT-IDENTIFIER: US 6281297 B1

TITLE: Isobutylene rubber particles, graft copolymer particles and resin composition containing the same

concarning the same

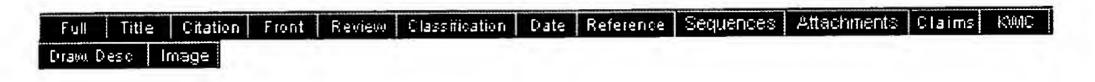
DATE-ISSUED: August 28, 2001

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Aoyama; Taizo Takasago JP Kimura; Katsuhiko Akashi JP

US-CL-CURRENT: $\underline{525}/\underline{333.7}$; $\underline{524}/\underline{579}$, $\underline{525}/\underline{64}$, $\underline{525}/\underline{66}$, $\underline{525}/\underline{67}$, $\underline{525}/\underline{70}$, $\underline{525}/\underline{78}$, $\underline{526}/\underline{348.7}$



4. Document ID: US 6201064 B1

L9: Entry 4 of 54 Fil

File: USPT Mar 13, 2001

US-PAT-NO: 6201064

DOCUMENT-IDENTIFIER: US 6201064 B1

TITLE: Crosslinked rubber particles, graft copolymer particles and thermoplastic resin

composition

DATE-ISSUED: March 13, 2001

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Aoyama; Taizo Takasago JP Kimura; Katsuhiko Akashi JP

US-CL-CURRENT: 525/63; 525/100, 525/101, 525/104, 525/106



5. Document ID: US 6111012 A

L9: Entry 5 of 54 File: USPT Aug 29, 2000

US-PAT-NO: 6111012

DOCUMENT-IDENTIFIER: US 6111012 A

TITLE: Polymer compositions for graft copolymer as well as mixtures thereof and

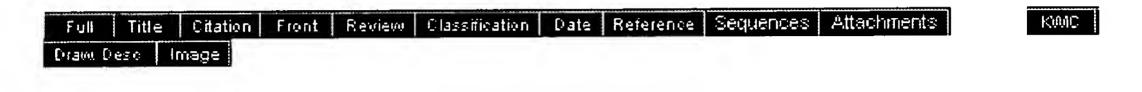
thermoplastic compounds containing them

DATE-ISSUED: August 29, 2000

INVENTOR-INFORMATION:

COUNTRY ZIP CODE STATE CITY NAME DE Fischer; Michael Ludwigshafen DE Neuhofen Koch; Jurgen DE Neustadt Rosenau; Bernhard DE Neustadt Mc Kee; Graham Edmund DE Ludwigshafen Grabowski; Sven DE Maxdorf Mosbach; Norbert DE Ludwigshafen Fischer; Wolfgang DE Weinheim Heckmann; Walter

US-CL-CURRENT: 525/64; 525/143, 525/316, 525/67



6. Document ID: US 6103830 A

L9: Entry 6 of 54

File: USPT

Aug 15, 2000

US-PAT-NO: 6103830

DOCUMENT-IDENTIFIER: US 6103830 A

TITLE: Impact resistant methacrylic resin containing a partially hydrogenated, conjugated diene polymer

DATE-ISSUED: August 15, 2000

INVENTOR-INFORMATION:

COUNTRY CITY STATE ZIP CODE NAME Yokohama JP Hirota; Satoru JP Yokohama Sasagawa; Masahiro Kinoshita; Hideo Yokohama JP

US-CL-CURRENT: <u>525/310</u>; <u>526/201</u>, <u>526/328.5</u>



7. Document ID: US 6066693 A

L9: Entry 7 of 54

File: USPT

May 23, 2000

US-PAT-NO: 6066693

DOCUMENT-IDENTIFIER: US 6066693 A

TITLE: Polymer composition for graft copolymers as well as mixtures thereof and

thermoplastic compounds containing them

DATE-ISSUED: May 23, 2000

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Fischer; Michael Ludwigshafen DE
Rosenau; Bernhard Neustadt DE
Fischer; Wolfgang Ludwigshafen DE

US-CL-CURRENT: 525/67; 525/143, 525/302, 525/316, 525/64

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWIC |
Draw, Desc | Image |

8. Document ID: US 5959033 A

L9: Entry 8 of 54

File: USPT

Sep 28, 1999

US-PAT-NO: 5959033

DOCUMENT-IDENTIFIER: US 5959033 A

TITLE: Polymers containing highly grafted rubbers

DATE-ISSUED: September 28, 1999

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Demirors; Mehmet Midland MI Priddy; Duane B. Midland MI

Hermans; Nicolaas M. A.TerneuzenNLVeraart; Rudi H. E.TerneuzenNLHeuvelsland; Albert J.HeikantNL

Sikkema; Kevin D. Midland MI

US-CL-CURRENT: <u>525/86</u>; <u>525/316</u>, <u>525/70</u>

Full Title Citation Front Review Classification Date Reference Sequences Attachments KMC Prawl Desc | Image |

9. Document ID: US 5834563 A

L9: Entry 9 of 54

File: USPT

Nov 10, 1998

US-PAT-NO: 5834563

DOCUMENT-IDENTIFIER: US 5834563 A

TITLE: Composite rubber particles and graft copolymer particles of composite rubber

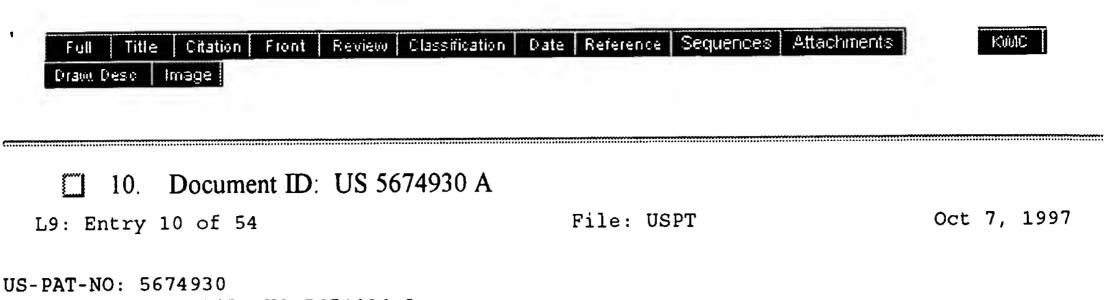
DATE-ISSUED: November 10, 1998

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Kimura; Katsuhiko Akashi JP
Aoyama; Taizo Takasago JP

US-CL-CURRENT: 525/319; 525/191, 525/227, 525/241, 525/310



DOCUMENT-IDENTIFIER: US 5674930 A

TITLE: Thermoplastic resin compositions

DATE-ISSUED: October 7, 1997

INVENTOR-INFORMATION:

COUNTRY ZIP CODE CITY STATE NAME JP Sugiura; Motoyuki Aichi JР Aichi Ohara; Kazumine

US-CL-CURRENT: $\underline{524}/\underline{404}$; $\underline{524}/\underline{423}$, $\underline{524}/\underline{428}$, $\underline{524}/\underline{431}$, $\underline{524}/\underline{441}$, $\underline{524}/\underline{445}$, $\underline{524}/\underline{449}$, $\underline{524}/\underline{451}$, 524/452, 524/504, 525/64, 525/66 , 525/67, 525/68, 525/71, 525/78, 525/79, 525/80, 525/85, 525/86



11. Document ID: US 5569709 A

L9: Entry 11 of 54

File: USPT

Oct 29, 1996

US-PAT-NO: 5569709

DOCUMENT-IDENTIFIER: US 5569709 A

TITLE: Grafting, phase-inversion and cross-linking controlled multi-stage bulk process for making ABS graft copolymers

DATE-ISSUED: October 29, 1996

INVENTOR-INFORMATION:

COUNTRY CITY STATE ZIP CODE NAME

Williamstown WVSue; Chen-Youn Koch; Robert Parkersburg WVPace; John E. Washington WVSandyville Prince; Gregory R. WV

US-CL-CURRENT: 525/52; 525/316, 525/53, 525/86

Drawn Desc	image i			

L9: Entry 12 of 54

File: USPT

May 9, 1995

US-PAT-NO: 5414045

DOCUMENT-IDENTIFIER: US 5414045 A

TITLE: Grafting, phase-inversion and cross-linking controlled multi-stage bulk process

for making ABS graft copolymers

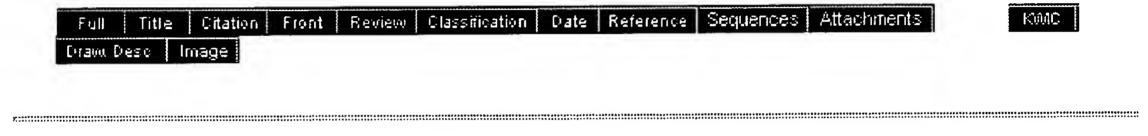
DATE-ISSUED: May 9, 1995

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Sue; Chen-Youn Williamstown WV
Koch; Robert Parkersburg WV
Pace; John E. Washington WV
Prince; Gregory R. Sandyville WV

US-CL-CURRENT: $\underline{525}/\underline{86}$; $\underline{525}/\underline{314}$, $\underline{525}/\underline{316}$, $\underline{525}/\underline{52}$, $\underline{525}/\underline{53}$



13. Document ID: US 5314964 A

L9: Entry 13 of 54

File: USPT

May 24, 1994

US-PAT-NO: 5314964

DOCUMENT-IDENTIFIER: US 5314964 A

TITLE: Low temperature process for the preparation of isopropenyl-alpha,

alpha-dimethylbenzyl isocyanate--grafted latexes

DATE-ISSUED: May 24, 1994

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Lucas; Howard R. Danbury CT

US-CL-CURRENT: 525/293; 524/458, 524/507, 525/173, 525/278, 525/69, 525/77, 526/223, 526/310



14. Document ID: US 5270375 A

L9: Entry 14 of 54 File: USPT

Dec 14, 1993

US-PAT-NO: 5270375

DOCUMENT-IDENTIFIER: US 5270375 A

TITLE: Polyarylene sulfide resin

DATE-ISSUED: December 14, 1993

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Yamamoto; Naoki Hiroshima JP
Yanagase; Akira Otake JP
Mori; Hiroshi Hiroshima JP
Nakata; Akira Otake JP

US-CL-CURRENT: 524/500; 524/492, 524/495, 525/474, 525/479, 525/537

Full Title Citation Front Review Classification Date Reference Sequences Attachments KMC Draw, Description

15. Document ID: US 5231137 A

L9: Entry 15 of 54

File: USPT

Jul 27, 1993

US-PAT-NO: 5231137

DOCUMENT-IDENTIFIER: US 5231137 A

TITLE: Isopropenyl-alpha, alpha-dimethylbenzyl isocyanate - grafted polymers

DATE-ISSUED: July 27, 1993

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Fisher; Michael M. Ridgefield CT White; Leroy A. Somers CT Lucas; Howard R. Danbury CT

US-CL-CURRENT: $\underline{525}/\underline{176}$; $\underline{525}/\underline{177}$, $\underline{525}/\underline{179}$, $\underline{525}/\underline{223}$, $\underline{525}/\underline{293}$, $\underline{525}/\underline{69}$, $\underline{525}/\underline{70}$, $\underline{528}/\underline{75}$

Full Title Citation Front Review Classification Date Reference Sequences Attachments 6000

16. Document ID: US 5227428 A

L9: Entry 16 of 54 File: USPT Jul 13, 1993

US-PAT-NO: 5227428

DOCUMENT-IDENTIFIER: US 5227428 A

TITLE: Rubber modified nylon composition

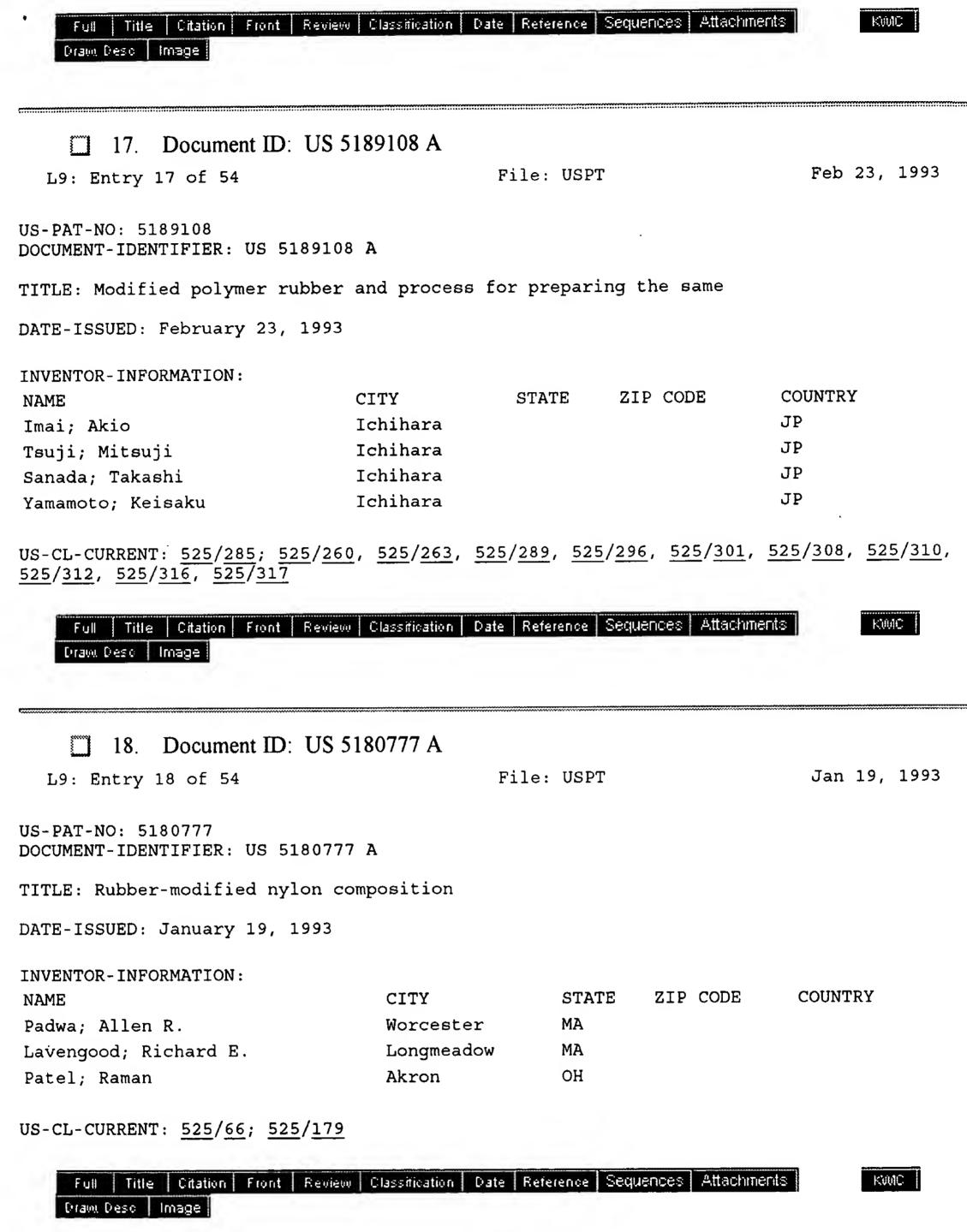
DATE-ISSUED: July 13, 1993

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Lavengood; Richard E. Longmeadow MA
Padwa; Allen R. Worcester MA
Harris; Alva F. Wilbraham MA

US-CL-CURRENT: <u>525/66</u>; <u>525/179</u>



19. Document ID: US 5164453 A

L9: Entry 19 of 54

File: USPT

Nov 17, 1992

US-PAT-NO: 5164453

DOCUMENT-IDENTIFIER: US 5164453 A

TITLE: Isopropenyl-alpha, alpha-dimethylbenzyl isocyanate--grafted polymers

DATE-ISSUED: November 17, 1992

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE COUNTRY

Fisher; Michael M.

Ridgefield

CT

White; Leroy A.

Somers

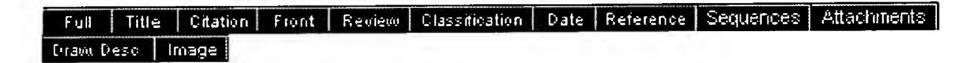
CT

Lucas; Howard R.

Danbury

CT

US-CL-CURRENT: <u>525/293</u>; <u>525/69</u>, <u>525/70</u>



KMAC

20. Document ID: US 5162419 A

L9: Entry 20 of 54

File: USPT

Nov 10, 1992

US-PAT-NO: 5162419

DOCUMENT-IDENTIFIER: US 5162419 A

TITLE: Low gloss talc filled ABS/PC

DATE-ISSUED: November 10, 1992

INVENTOR-INFORMATION:

COUNTRY CITY STATE ZIP CODE NAME

Pottier-Metz; Catherine M. M.

Beauvais

Erpelding; Michel

St. Maxim

FR

FR

US-CL-CURRENT: 524/451; 525/67



KWWC

21. Document ID: US 5130394 A

L9: Entry 21 of 54

File: USPT

IA

Jul 14, 1992

US-PAT-NO: 5130394

DOCUMENT-IDENTIFIER: US 5130394 A

TITLE: Starch graft polymers

DATE-ISSUED: July 14, 1992

INVENTOR-INFORMATION:

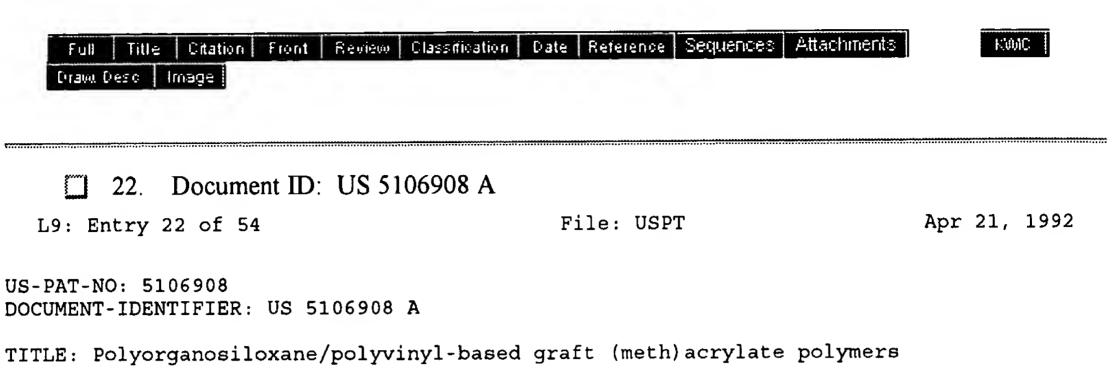
ZIP CODE COUNTRY STATE NAME CITY

Cedar Rapids Nguyen; Charles C. Martin; Verne J.

Cedar Rapids ΙA

Pauley; Edward P.

Jesup IA US-CL-CURRENT: 527/300; 527/303, 527/313, 527/314, 527/315



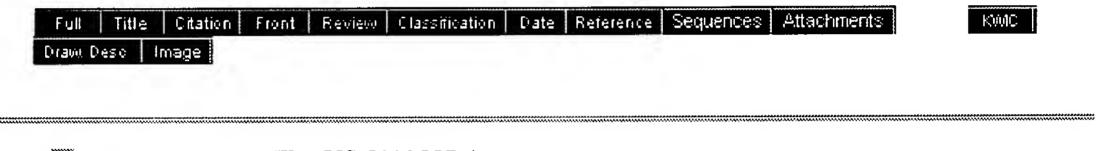
DATE-ISSUED: April 21, 1992

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Alsmarraie; Muhanad A. Clifton Park NY
Hobbs; Stanley Y. Scotia NY
Wang; I-chung W. Williamstown MA
Watkins; Vicki H. Alplaus NY

US-CL-CURRENT: <u>525/105</u>; <u>525/100</u>, <u>525/104</u>, <u>525/479</u>



23. Document ID: US 5089557 A

L9: Entry 23 of 54 File: US

File: USPT Feb 18, 1992

US-PAT-NO: 5089557

DOCUMENT-IDENTIFIER: US 5089557 A

TITLE: Rubber modified blend of nylon and styrene/acrylonitrile maleic anhydride

terpolymer

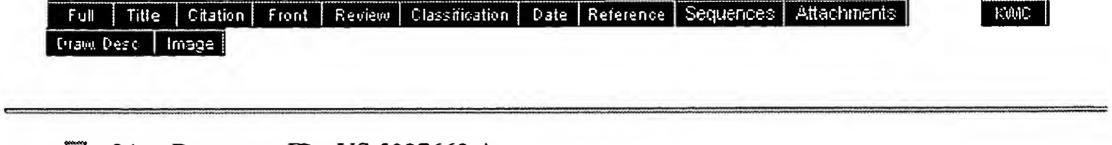
DATE-ISSUED: February 18, 1992

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Henton; David E. Midland MI Mang; Michael N. Midland MI

US-CL-CURRENT: <u>525/66</u>; <u>525/179</u>



24. Document ID: US 5087662 A

L9: Entry 24 of 54

File: USPT

Feb 11, 1992

US-PAT-NO: 5087662

DOCUMENT-IDENTIFIER: US 5087662 A

TITLE: Polyester, polycarbonate and/or polyphenylene ether with polyorganosiloxane/polyvinyl-based graft (meth) acrylate polymers

DATE-ISSUED: February 11, 1992

INVENTOR-INFORMATION:

COUNTRY STATE ZIP CODE CITY NAME

Clifton Park NY Alsmarraie; Muhanad A. NY Scotia Hobbs; Stanley Y. Williamstown MA Wang; I-Chung W. Watkins; Vicki H. Alplaus NY

US-CL-CURRENT: $\underline{525/63}$; $\underline{525/100}$, $\underline{525/104}$, $\underline{525/105}$, $\underline{525/391}$, $\underline{525/392}$, $\underline{525/393}$, $\underline{525/394}$, 525/439, 525/445, 525/446, 525/464, 525/474



25. Document ID: US 5079293 A

L9: Entry 25 of 54

File: USPT

Jan 7, 1992

US-PAT-NO: 5079293

DOCUMENT-IDENTIFIER: US 5079293 A

TITLE: Thermoplastic compositions containing combined modifiers

DATE-ISSUED: January 7, 1992

INVENTOR-INFORMATION:

COUNTRY CITY STATE ZIP CODE NAME WV Alsamarraie; Muhanad A. Parkersburgh Schenectady NYHobbs; Stanley Y. WV Wang; I-Chung W. Vienna Mt. Vernon DeRudder; James L. IN Schenectady Watkins; Vicki H. NY Schenectady NY Dekkers; Marinus E. J.

US-CL-CURRENT: 525/66; 525/100, 525/105, 525/106, 525/393, 525/421, 525/422, 525/439, 525/440, 525/445, 525/464, 525/479, 525/63, 525/67, 525/68, 525/902

	Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
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		26.	Docume	ent ID:	US 50	045595 A					

20. Document ID: US 3043393 A

L9: Entry 26 of 54

File: USPT

Sep 3, 1991

US-PAT-NO: 5045595

DOCUMENT-IDENTIFIER: US 5045595 A

TITLE: Polyorganosiloxane/polyvinyl-based graft polymers, process and thermoplastic compositions containing the same

DATE-ISSUED: September 3, 1991

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Wang; I-Chung W. Williamstown MA

US-CL-CURRENT: $\underline{525/66}$; $\underline{525/100}$, $\underline{525/104}$, $\underline{525/105}$, $\underline{525/421}$, $\underline{525/439}$, $\underline{525/440}$, $\underline{525/445}$, $\underline{525/464}$, $\underline{525/474}$, $\underline{525/479}$, $\underline{525/63}$, $\underline{525/67}$, $\underline{525/68}$, $\underline{525/72}$

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWC

27. Document ID: US 5025066 A

L9: Entry 27 of 54 File: USPT Jun 18, 1991

US-PAT-NO: 5025066

DOCUMENT-IDENTIFIER: US 5025066 A

TITLE: Polycarbonate and polyester blends modified with polyorganosiloxane graft polymers combined with diene rubber-based graft polymers

DATE-ISSUED: June 18, 1991

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

DeRudder; James L. Mt. Vernon IN Wang; I-Chung W. Williamstown MA

US-CL-CURRENT: 525/66; 525/100, 525/104, 525/105, 525/421, 525/422, 525/439, 525/440, 525/445, 525/464, 525/479, 525/63, 525/67, 525/902

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWC Draw, Description Image

28. Document ID: US 5003022 A

L9: Entry 28 of 54 File: USPT Mar 26, 1991

US-PAT-NO: 5003022

DOCUMENT-IDENTIFIER: US 5003022 A

TITLE: Starch graft polymers

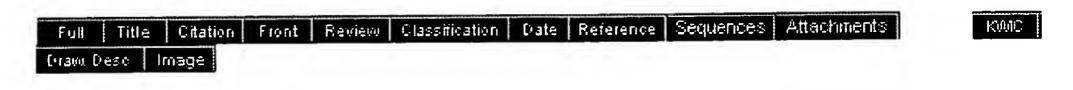
DATE-ISSUED: March 26, 1991

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Nguyen; Charles C. Cedar Rapids IA
Martin; Verne J. Cedar Rapids IA
Pauley; Edward P. Jesup IA

US-CL-CURRENT: <u>527/300</u>; <u>428/511</u>, <u>428/512</u>, <u>428/532</u>, <u>428/535</u>, <u>527/303</u>, <u>527/313</u>, <u>527/314</u>, <u>527/315</u>



29. Document ID: US 4929673 A

L9: Entry 29 of 54

File: USPT

May 29, 1990

US-PAT-NO: 4929673

DOCUMENT-IDENTIFIER: US 4929673 A

TITLE: Polycarbonate/styrenic blends modified with a grafted olefin copolymer

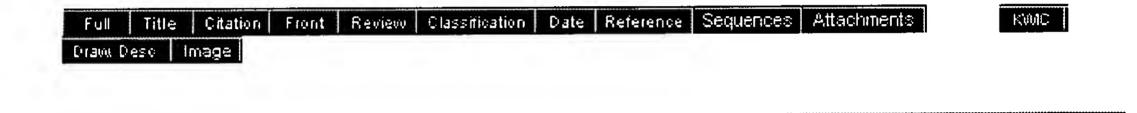
DATE-ISSUED: May 29, 1990

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Laughner; Michael K. Lake Jackson TX
Lancaster; Gerald M. Freeport TX
Sun; Yun C. Midland MI

US-CL-CURRENT: 525/63; 525/146, 525/148, 525/92E



30. Document ID: US 4902742 A

L9: Entry 30 of 54

File: USPT

Feb 20, 1990

US-PAT-NO: 4902742

DOCUMENT-IDENTIFIER: US 4902742 A

TITLE: Thermoplastic polymethacrylimide resin composition

DATE-ISSUED: February 20, 1990

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Yamamoto; Naoki Hiroshima JP
Nishida; Kozi Otake JP
Yanagase; Akira Otake JP

US-CL-CURRENT: 525/63



31. Document ID: US 4898965 A

L9: Entry 31 of 54

File: USPT

Feb 6, 1990

US-PAT-NO: 4898965

DOCUMENT-IDENTIFIER: US 4898965 A

TITLE: Additives for synthetic resins

DATE-ISSUED: February 6, 1990

INVENTOR-INFORMATION:

NAME
CITY STATE ZIP CODE COUNTRY
Kinoshita; Mitsuo
Aichi
Imamura; Shigeru
Aichi
Matsueda; Hirokazu
Aichi
JP

US-CL-CURRENT: <u>558/416</u>; <u>558/302</u>, <u>558/399</u>, <u>558/406</u>, <u>558/414</u>, <u>558/442</u>, <u>560/196</u>, <u>560/198</u>, <u>560/199</u>, <u>560/90</u>, <u>560/91</u>

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWC Draw, Description

32. Document ID: US 4898964 A

L9: Entry 32 of 54

File: USPT

Feb 6, 1990

US-PAT-NO: 4898964

DOCUMENT-IDENTIFIER: US 4898964 A

TITLE: Additives for synthetic resins

DATE-ISSUED: February 6, 1990

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY
Kinoshita; Mitsuo Aichi JP
Imamura; Shigeru Toyokawa JP
Matsueda; Hirokazu Toyohashi JP

US-CL-CURRENT: <u>558/416</u>; <u>558/302</u>, <u>558/399</u>, <u>558/406</u>, <u>558/414</u>, <u>558/442</u>, <u>560/128</u>, <u>560/196</u>, <u>560/198</u>, <u>560/199</u>, <u>560/89</u>, <u>560/90</u>, <u>560/91</u>

Full Title Citation Front Review Classification Date Reference Sequences Attachments

Draw, Description

33. Document ID: US 4892900 A

L9: Entry 33 of 54

File: USPT

Jan 9, 1990

US-PAT-NO: 4892900

DOCUMENT-IDENTIFIER: US 4892900 A

TITLE: Polyphenylene ether resin composition

DATE-ISSUED: January 9, 1990

INVENTOR-INFORMATION:

Lución

NAME CITY STATE ZIP CODE COUNTRY

Sasaki; Isao Hiroshima JP
Yamamoto; Naoki Hiroshima JP
Yanagase; Akira Otake JP

US-CL-CURRENT: 524/141; 524/409, 524/504, 525/133, 525/63

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWC |

Drawn Desc | Image |

34. Document ID: US 4879347 A

L9: Entry 34 of 54 File: USPT

Nov 7, 1989

US-PAT-NO: 4879347

DOCUMENT-IDENTIFIER: US 4879347 A

TITLE: Graft polymerization preformer and method of manufacturing the same

DATE-ISSUED: November 7, 1989

INVENTOR-INFORMATION:

NAME
CITY STATE ZIP CODE
COUNTRY
Moriya; Yasuo
Aichi
Suzuki; Nobuyoshi
Aichi
Goto; Hiroshi
Aichi
JP

US-CL-CURRENT: 525/263; 525/277, 525/286, 525/303

Full Title Citation Front Review Classification Date Reference Sequences Attachments KMC Drawl Desc Image

35. Document ID: US 4877841 A

L9: Entry 35 of 54

File: USPT

Oct 31, 1989

US-PAT-NO: 4877841

DOCUMENT-IDENTIFIER: US 4877841 A

TITLE: Graft polymerization preformer and method of manufacturing the same

DATE-ISSUED: October 31, 1989

INVENTOR-INFORMATION:

NAME
CITY STATE ZIP CODE COUNTRY
Moriya; Yasuo
Aichi
Suzuki; Nobuyoshi
Aichi
JP
Goto; Hiroshi
Aichi
JP

US-CL-CURRENT: 525/286; 525/263, 525/277, 525/303, 525/80, 525/913

Full Title Citation Front Review Classification Date Reference Sequences Attachments (WIC | Drawl Description | Image | Company | Compan

36. Document ID: US 4839432 A

L9: Entry 36 of 54

File: USPT

Jun 13, 1989

US-PAT-NO: 4839432

DOCUMENT-IDENTIFIER: US 4839432 A

TITLE: Method of manufacturing a grafted resin composition

DATE-ISSUED: June 13, 1989

INVENTOR-INFORMATION:

COUNTRY ZIP CODE CITY STATE NAME JP Chita Moriya; Yasuo JP Suzuki; Nobuyoshi Chita JP Chita Goto; Hiroshi

US-CL-CURRENT: <u>525/303</u>; <u>525/243</u>, <u>525/263</u>



37. Document ID: US 4777211 A

L9: Entry 37 of 54

File: USPT

Oct 11, 1988

US-PAT-NO: 4777211

DOCUMENT-IDENTIFIER: US 4777211 A

TITLE: Rubber-modified nylon composition

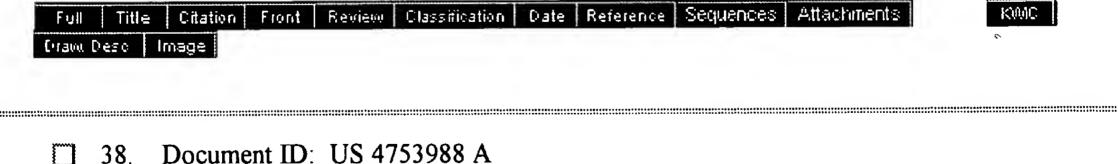
DATE-ISSUED: October 11, 1988

INVENTOR-INFORMATION:

ZIP CODE COUNTRY CITY STATE NAME

Longmeadow MA Lavengood; Richard E. OH Akron Patel; Raman MA Padwa; Allen R. Worcester

US-CL-CURRENT: <u>525/66</u>; <u>525/179</u>, <u>525/902</u>



File: USPT L9: Entry 38 of 54

Jun 28, 1988

US-PAT-NO: 4753988

DOCUMENT-IDENTIFIER: US 4753988 A

TITLE: High gloss acrylate rubber-modified weatherable resins

DATE-ISSUED: June 28, 1988

. .

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Henton; David E. Midland MI Anthony; Edward B. Dalton GA

US-CL-CURRENT: $\underline{525}/\underline{73}$; $\underline{525}/\underline{193}$, $\underline{525}/\underline{228}$, $\underline{525}/\underline{71}$, $\underline{525}/\underline{74}$, $\underline{525}/\underline{75}$, $\underline{525}/\underline{81}$, $\underline{525}/\underline{85}$



39. Document ID: US 4713415 A

L9: Entry 39 of 54 File: USPT . Dec 15, 1987

US-PAT-NO: 4713415

DOCUMENT-IDENTIFIER: US 4713415 A

TITLE: Rubber modified nylon composition

DATE-ISSUED: December 15, 1987

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Lavengood; Richard E. Longmeadow MA
Padwa; Allen R. Worcester MA
Harris; Alva F. Wilbraham MA

US-CL-CURRENT: 525/66; 525/183



40. Document ID: US 4690986 A

L9: Entry 40 of 54 File: USPT Sep 1, 1987

US-PAT-NO: 4690986

DOCUMENT-IDENTIFIER: US 4690986 A

TITLE: Impact-resistant thermoplastic polyorganosiloxane-based graft copolymer and process for producing same

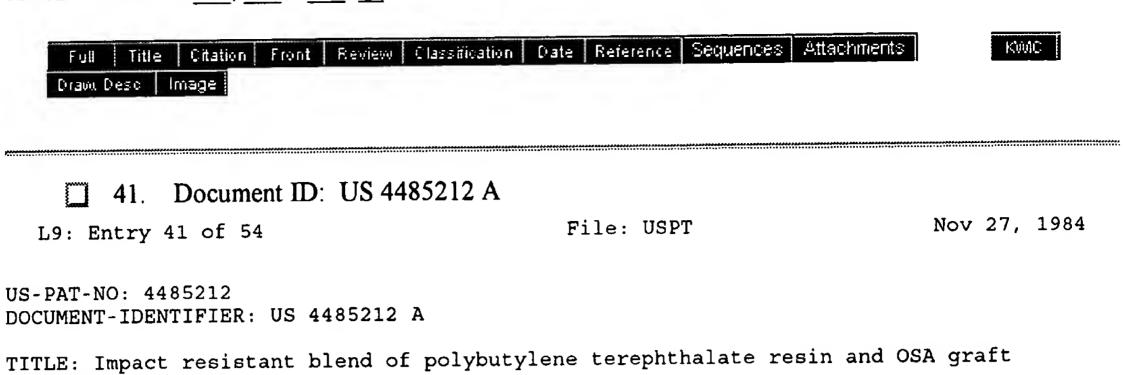
DATE-ISSUED: September 1, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sasaki; Isao	Hiroshima			JP
Yanagase; Akira	Otake			JP
Kawachi; Yasunori	Otake			JP
Mayuzumi; Tetsuya	Kawagoe			JP
Oba; Toshio	Annaka			JP
Okada; Fumio	Takasaki			JP

17 of 24 12/7/02 11:01 AM

US-CL-CURRENT: 525/479; 528/32



copolymer

DATE-ISSUED: November 27, 1984

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

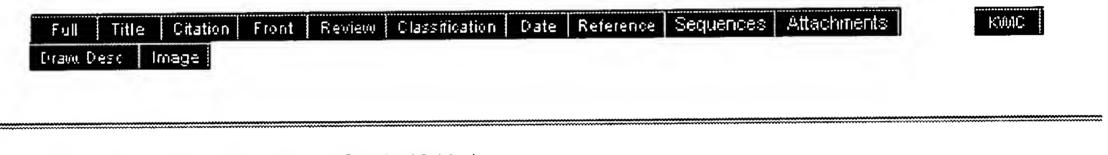
COUNTRY

Wefer; John M.

Newtown

CT

US-CL-CURRENT: 525/64; 525/289, 525/313



42. Document ID: US 4444841 A

L9: Entry 42 of 54

File: USPT

Apr 24, 1984

US-PAT-NO: 4444841

DOCUMENT-IDENTIFIER: US 4444841 A

TITLE: Extruded AES film

DATE-ISSUED: April 24, 1984

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

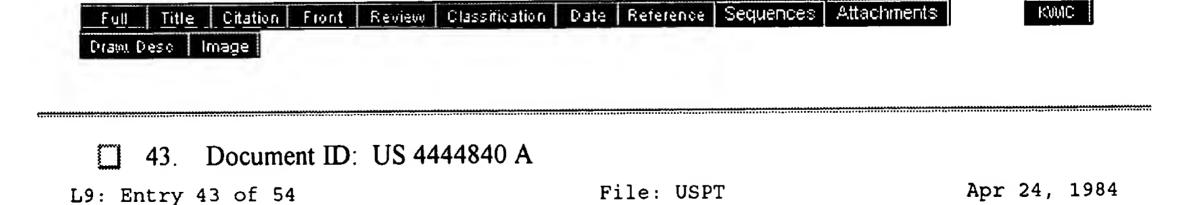
COUNTRY

Wheeler; Robert D.

Fairfield

CT

US-CL-CURRENT: 428/339; 428/462, 428/463, 428/496, 428/507, 428/521



US-PAT-NO: 4444840

DOCUMENT-IDENTIFIER: US 4444840 A

TITLE: Calendered AES film

DATE-ISSUED: April 24, 1984

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Wefer; John M. Newtown CT

US-CL-CURRENT: 428/339; 428/493, 428/521, 428/522

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWC |

11 44. Document ID: US 4440825 A

L9: Entry 44 of 54 File: USPT Apr 3, 1984

US-PAT-NO: 4440825

DOCUMENT-IDENTIFIER: US 4440825 A

TITLE: Laminate with skin based on AES graft copolymer

DATE-ISSUED: April 3, 1984

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Paddock; Charles F. Southbury CT

US-CL-CURRENT: 428/318.6; 428/318.4, 428/318.8, 428/319.7, 428/521, 525/70, 525/75

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWIC

45. Document ID: US 4438171 A

L9: Entry 45 of 54 File: USPT Mar 20, 1984

US-PAT-NO: 4438171

DOCUMENT-IDENTIFIER: US 4438171 A

TITLE: Coextruded product of AES-thermoplastic graft copolymer

DATE-ISSUED: March 20, 1984

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Wefer; John M. Newtown CT

US-CL-CURRENT: 428/215; 156/244.11, 428/216, 428/220, 428/517, 428/519, 428/521

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWIC

Drawl Description

S.A.

46. Document ID: US 4346199 A

L9: Entry 46 of 54

File: USPT

Aug 24, 1982

US-PAT-NO: 4346199

DOCUMENT-IDENTIFIER: US 4346199 A

TITLE: Process for a polymeric polyblend composition comprising a matrix phase terpolymer of alkenyl aromatic alkenyl nitrile and myrcene monomers and a diene rubber phase grafted with said monomers

DATE-ISSUED: August 24, 1982

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Peng; Fred M. Longmeadow MA Tokas; Edward F. Kirkwood MO

US-CL-CURRENT: 525/316; 525/288, 525/292, 525/295



47. Document ID: US 4268638 A

L9: Entry 47 of 54

File: USPT

May 19, 1981

US-PAT-NO: 4268638

DOCUMENT-IDENTIFIER: US 4268638 A

TITLE: Process for the preparation of rubber-modified thermoplastic resins

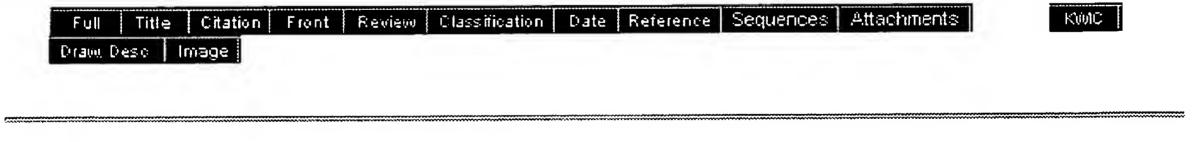
DATE-ISSUED: May 19, 1981

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Shimokawa; Shin-ichi Yokkaichi JP
Yamamoto; Yuji Suzuka JP
Nagai; Hisao Yokkaichi JP

US-CL-CURRENT: 525/263; 525/264, 525/289, 525/316



3 48. Document ID: US 4221681 A

L9: Entry 48 of 54

File: USPT

Sep 9, 1980

US-PAT-NO: 4221681

DOCUMENT-IDENTIFIER: US 4221681 A

TITLE: Method of forming graft copolymers by attaching pre-polymerized side chains to a natural or unsaturated synthetic rubber backbone, and the resulting graft copolymers

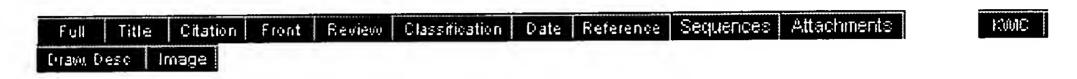
DATE-ISSUED: September 9, 1980

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Campbell; David S. Welwyn
Loeber; David E. Hertford GB2
Tinker; Andrew J. Hertford GB2

US-CL-CURRENT: 525/194; 525/232, 525/376



49. Document ID: US 4185049 A

L9: Entry 49 of 54 File: USPT Jan 22, 1980

US-PAT-NO: 4185049

DOCUMENT-IDENTIFIER: US 4185049 A

TITLE: Mass polymerization process for polyblends

DATE-ISSUED: January 22, 1980

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Kruse; Robert L. Springfield MA
Peng; Fred M. Longmeadow MA

US-CL-CURRENT: 525/84



50. Document ID: US 4134927 A

L9: Entry 50 of 54 File: USPT Jan 16, 1979

US-PAT-NO: 4134927

DOCUMENT-IDENTIFIER: US 4134927 A

TITLE: Production of thermoplastic olefin elastomers

DATE-ISSUED: January 16, 1979

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY
Tomoshige: Toru Ohtake JP

Tomoshige; Toru Ohtake JP
Nagano; Riichiro Waki JP
Imamura; Tetsuo Iwakuni JP

US-CL-CURRENT: 525/245; 525/247, 525/253, 525/263, 525/265, 525/285, 525/301, 525/386

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWC

Drawn Description

51. Document ID: US 3919355 A

L9: Entry 51 of 54

File: USPT

Nov 11, 1975

US-PAT-NO: 3919355

DOCUMENT-IDENTIFIER: US 3919355 A

TITLE: Method for preparing shock-resistant grafted copolymers of styrene or vinyltoluene with synthetic rubber

DATE-ISSUED: November 11, 1975

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP	CODE	COUNTRY	
Ballova; Galina Dmitrievna	Leningrad				SU	
Egorova; Ekaterina Ivanovna	Leningrad				SU	
Sivograkova; Klavdiya Andreevna	Leningrad				SU	
Bezborodko; Georgy Lazarevich	Leningrad				SU	
Lebedeva; Mariya Moiseevna	Leningrad				SU	
Rusinovskaya; Irina Ivanovna	Leningradskya oblast				SU	
Maladzyanova; Larisa Fedorovna	Leningrad				SU	
Maximov; Vladimir Nikolaevich	Leningrad				SU	
Ostrovskaya; Tamara Nikolaevna	Leningrad				SU	

US-CL-CURRENT: 525/255; 525/261, 525/316

Full Title Citation Front Review Classification Date Reference Sequences Attachments

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52. Document ID: US 3909463 A

L9: Entry 52 of 54

File: USPT

Sep 30, 1975

US-PAT-NO: 3909463

DOCUMENT-IDENTIFIER: US 3909463 A

TITLE: Grafted block copolymers of synthetic rubbers and polyolefins

DATE-ISSUED: September 30, 1975

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Hartman; Paul F. Wayne NJ

US-CL-CURRENT: <u>521/136</u>; <u>521/139</u>, <u>521/140</u>, <u>521/81</u>, <u>521/88</u>, <u>525/133</u>, <u>525/136</u>, <u>525/138</u>, <u>525/139</u>, <u>525/145</u>

Full Title Citation Front Review Classification Date Reference Sequences Attachments KWC

Draw, Description

53. Document ID: US 3898301 A

L9: Entry 53 of 54

File: USPT

Aug 5, 1975

US-PAT-NO: 3898301

DOCUMENT-IDENTIFIER: US 3898301 A

TITLE: Blends of thermoplastic polymers with graft copolymers of maleic acid

derivatives

DATE-ISSUED: August 5, 1975

INVENTOR-INFORMATION:

NAME
CITY STATE ZIP CODE COUNTRY
Konishi; Kunio
Osaka
Tsubakimoto; Tsuneo
Osaka
Nikki; Masao
Osaka
JA
JA

US-CL-CURRENT: $\underline{525/77}$; $\underline{524/151}$, $\underline{524/303}$, $\underline{525/286}$, $\underline{525/288}$, $\underline{525/292}$, $\underline{525/293}$, $\underline{525/296}$, $\underline{525/297}$, $\underline{525/301}$, $\underline{525/303}$, $\underline{525/304}$, $\underline{525/305}$, $\underline{525/306}$, $\underline{525/73}$, $\underline{525/74}$, $\underline{525/75}$, $\underline{525/76}$, $\underline{525/78}$, $\underline{525/79}$, $\underline{525/81}$, $\underline{525/82}$, $\underline{526/225}$, $\underline{526/312}$, $\underline{526/318}$, $\underline{526/325}$, $\underline{526/329.2}$, $\underline{526/329.3}$, $\underline{526/342}$



54. Document ID: US 3887653 A

L9: Entry 54 of 54

File: USPT

Jun 3, 1975

US-PAT-NO: 3887653

DOCUMENT-IDENTIFIER: US 3887653 A

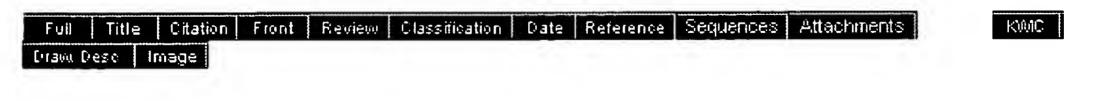
TITLE: Process for production of graft copolymers, the substrates of which contain allyl derivatives of maleic acid and maleic acid anhydride

DATE-ISSUED: June 3, 1975

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY
Konishi; Kunio Takatsuki JA
Tsubakimoto; Tsuneo Toyonaka JA
Nikki; Masao Ibaragi JA

US-CL-CURRENT: 525/301; 524/151, 524/303, 525/293, 525/303, 526/225, 526/271, 526/312, 526/318, 526/325, 526/329.5, 526/342



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